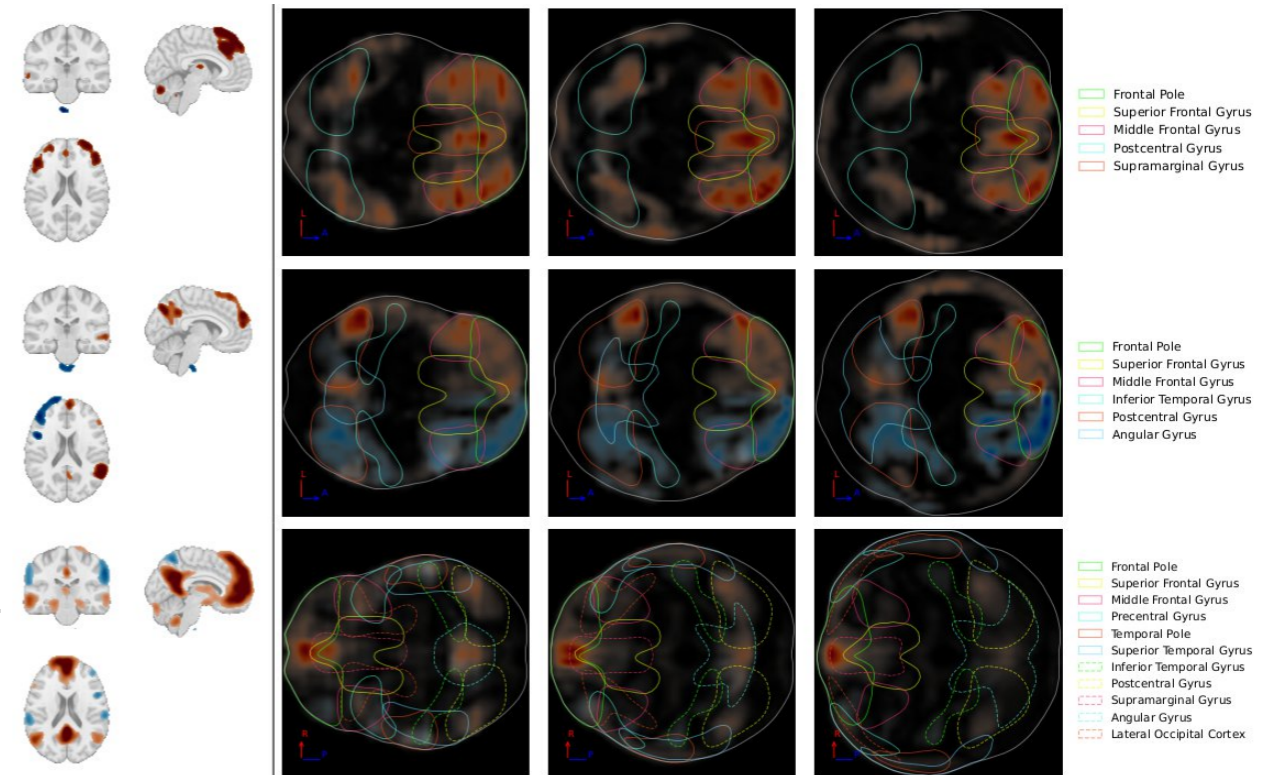


2026-T4 NeuroMaps: A Compact Fingerprint for Analyzing Brain Activity

Bachelor Thesis
Master Thesis
Project

NeuroMaps^[1] is a novel visualization technique for the compact display of regional brain activity (measured through fMRI, EEG, etc.). The baseline fingerprint combines a saliency map of activities integrated along an optimal projection axis, enhanced by parcellation outlines and additional visual cues for providing context. The main benefit of this kind of representation is that it shows a holistic overview of activities in a single dense image, while reference methods such as orthogonal slices, glass brains, surface rendering require multiple images to achieve the same effect.

There is ample room for extending the baseline approach from a methodological perspective. Further tasks include a thorough evaluation of the approach's effectiveness for the analysis of specific samples and its integration into an interactive web-based framework.



Left: Orthogonal slices (reference), right: NeuroMaps. Source: [1]

[1]Lengauer, S., Kantz, B., Waldert, P., Tussardi, G., Kohn, N., Schreck, T., "NeuroMaps — A Compact Fingerprint for Analyzing Brain Activity" (under review).